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Succinea witteri Shimek (Gastropoda: Succineidae) in Illinois

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ABSTRACT

Succinea witteri Shimek (formerly known as *S. concordialis)* has been found to be a widespread common species in central Illinois. The three previous Illinois records for the species are supplemented by 15 further collecting sites. In Illinois the species has been found along permanent and temporary bodies of water. Patches of bare ground and some exposure to full sun also appear to be required.

The name *Succinea concordialis* has been widely used for the essentially black succineid snail that has white spots on the mantle (yellow or gold when viewed through the shell) . Hubricht (1974) believes that the type lot of *S. concordialis* Gould 1848 are shells conspecific with *Pseudosuccinea columella* (Say) 1817, a limnaeid, and that succineid snails formerly known as *S. concordialis* Auctorum should be referred to as *S. forsheyi* Lea 1864. The type locality of *S. forsheyi* is Rutersville, Fayette Co., Texas. Specimens that Pilsbry (1948) identified as *S. concordialis* from Del Rio, Texas have prostate glands that are larger than their albumen glands. Kansas succineids identified as *S. concordialis* by Leonard (1959) differ from the Texas population in that the prostate is relatively small. We have examined genitalia of over 100 Illinois specimens ranging from **4-14.5** mm in size and collected from May-August. In all specimens the prostate is smaller than the albumen gland. Since a distinct possibility exists that the Texas populations differ from Kansas and Illinois populations in the anatomy of the genitalia, we have elected to use the name *S. witteri* Shimek (type locality: Iowa City, Iowa) which undoubtedly represents the northern form of *S. concordialis* Auctorum. The systematic position of Texas and other southern populations is uncertain and requires dissection of series of specimens from various localities before the name *S. forsheyi* can be applied to northern populations of *S. concordialis* Auctorum.

In Illinois *S. witteri (S. concordialis* Auctorum) was previously known from three localities **(Du** Bois, Washington Co. (Baker, 1939) ; Canton, Fulton Co. and Athens, Menard **Co.** (Pilsbry, 1948)) . Field work during **1975-76** indicates that it is much more common in Illinois than has heretofore been known. We find that *S. witteri* is **the** most

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Locality number	Date	Locality
1	28 Aug. 1976	Shore of Canton Lake at public boat ramp (sec. 19, T. 7 N., R. 5 E.), Fulton Co.
2	28 Aug. 1976	In lowland bordering NE arm Canton Lake (sec. 19, T. 7 N., R. 5 E.), Fulton Co.
3	28 Aug. 1976	West Fork Copperas Creek (sec. 33, T. 7 N., R. 5 E.), 1.8 air km N Monterey, Fulton Co.
4	28 Aug. 1976	Cattail stand, N side Ill. Hwy. 9-U.S. Hwy. 24, 0.4 km NE Fulton-Peoria Co. line, Peoria Co.
5	19 July 1976	Unnamed creek, 5.3 air km W Lexington (sec. 10, T. 25 N., R. 5 E.), McLean Co.
6	20 July 1976	N bank Mackinaw River, 8.2 air km SE Lexington (sec. 35, T. 25 N. R. 4E.), McLean Co.
	29 July 1976	
7	24 July 1976	S arm Evergreen Lake, 6.4 km N jct. Int. Hwy. 74-55 and U.S. Hwy. 51 in Normal, McLean Co.
8	16 Aug. 1976	Six Mile Creek behind Evergreen Lake spillway, 8 km N jct. Int. Hwy. 74-55 and U.S. Hwy 51 in Normal, Woodford Co.
9	18 May 1976	Sugar Creek at Ill. Hwy. 138, 1.4 km NW White City, Macoupin Co.
10	16 July 1976	Little Wabash River behind spillway of Lake Paradise, 6.4 km SW jct. Ill. Hwys. 16-121 and U.S. Hwy. 45 in Mattoon, Coles Co. E
	17 Aug. 1976	
11	17 Aug. 1976	bank Kaskaskia River, 2 km E Cowden, Shelby Co.
12	17 Aug. 1976	Wolf Creek at Ill. Hwy. 128, 3.7 km SW Beecher City on the Fayette-Effingham Co. line (snails from both cos.).
13	17 Aug. 1976	Mocassin Rd. bridge over Shumway Cove, Lake Sara, 8 air km W jct. U.S. Hwy. 40 and Ill. Hwys. 32-33 in Effingham, Effingham Co.
14	16 Aug. 1976	W end Lake Sara where Blue Point Creek enters the lake, 9.1 air km W jct. U.S. Hwy. 40 and Ill. Hwys. 32-33 in Effingham, Effingham Co.
15	2 May 1976	Shoal Creek, 3.2 km E Shumway, Effingham Co.
	16 Aug. 1976	

Table 1. Locality data for 15 *Succinea witteri* populations in central Illinois. Locality numbers correspond to those in Table 2 and the text.

commonly encountered succineid snail in central Illinois where most of our field work was done. The present paper reports 15 new localities for this species in Illinois with brief descriptions of each locality. Table 1 presents exact locality data and collecting dates for new records while Table 2 contains the number of living snails collected on each date and the average lengths of the samples. Voucher specimens from each locality will be reposited in the Field Museum of Natural History.

Locality number		*n*	Length (mm)	Mean Length (mm)
1		18	7.4-11.1	8.87
2		2	7.6-8.5	8.05
3		6	8.0-9.6	8.78
4		2	8.1-9.1	8.60
5		33	4.5-9.5	7.11
	20 July	5	7.7-10.3	8.70
6				
	29 July	8	7.6-11.2	9.46
7		4	6.1-12.0	8.18
8		25	6.3-11.2	9.49
9		2	9.5-10.8	10.15
	16 July	14	5.5-9.4	7.67
10				
	17 Aug.	6	5.6-11.7	8.92
11		2	14.1-14.5	14.30
12		24	4.1-12.2	7.74
13		16	6.2-10.1	7.49
14		22	4.0-9.5	6.91
	2 May	43	4.9-9.4	7.57
15				
	16 Aug.	9	8.6-11.1	9.61

Table 2. Dimensions of living specimens of *S. witteri* Shimek collected at each of the newly reported localities. See Table 1 for locality data.

LOCALITY DESCRIPTIONS

Fulton Co. The previous record (Pilsbry, 1948) was based on dead shells. We were able to confirm the presence of *S. witteri* in Fulton Co., having found living specimens at three localities in the county.

1. Canton Lake boat ramp. Specimens were found along a wave-washed mud bank in both exposed and protected sites. Vegetation consisted of mowed grasses and sedges.

2. Canton Lake, NE arm. Specimens were found on muddy bare spots amidst dense tangles of *Polygonum* and *Salix* seedlings.

3. West Fork Copperas Creek. Specimens were found on steeply sloping mud banks near the water's edge and crawling exposed to the sun on sandstone and shale outcroppings that border the creek.

Peoria Co. No previous records.

4. Specimens were found crawling on the ground amidst a large stand of cattails. No standing water was present.

McLean Co. No previous records.

5. Unnamed creek. Specimens were found amidst sedges and at the bases of grasses bordering the creek as well as on the exposed mud banks of the creek.

6. Mackinaw River. Individuals were found along the sloping mud banks of the river, both between clumps of grasses, smartweed and other forbs and among a low (<3 cm) species of prostrate dicot plant. Snails were found both on the ground and the bases of the plants.

7. Evergreen Lake. Specimens were found under logs near the banks and at the bases of grasses growing near the banks. One specimen was found on a block of concrete that was in the lake about 1 m from shore.

Woodford Co. No previous records.

8. Evergreen Lake spillway. Individuals were found in exposed places and at the bases of grass clumps along the creek banks.

Macoupin Co. No previous records.

9. Individuals were found in exposed situations on a nearly flat sandy stream bank sparsely studded with sycamore, cottonwood, willow and grasses.

Coles Co. No previous records.

10. Specimens were found among dense tangles of water willow, *Justicia americana.* On 16 July most specimens were collected on concrete blocks that were exposed to the sun. On 17 Aug. no specimens were found on the blocks but some were found among tangles of *Justicia* and crawling in exposed places along the river banks.

Shelby Co. No previous records.

11. Specimens were observed at night (1145-0015 CDT) crawling on plants *(Salix)* at a height of 0.25-0.5 m.

Fayette-Effingham Co. No previous records.

12. Specimens were found crawling on exposed mud and gravel banks of the creek. Some were found at the bases of grasses while others were observed on large concrete blocks that littered the banks.

Effingham Co. No previous records.

13. Shumway Cove. Specimens were found among cattails both on the ground and on the bases of the plants.

14. Blue Point Creek. Individuals were found at night (2100-2400 CDT) among cattails both on the ground and on plants to a height of 0.5 m.

15. Shoal Creek. Specimens were found crawling on shale and limestone that cover much of the creek bed. Some snails were among plant tangles but most were in exposed sites.

DISCUSSION

While the above list of habitats in which we found *S. witteri* appears to be quite varied, certain characteristics are common to all localities. All sites immediately border permanent or temporary bodies of water.

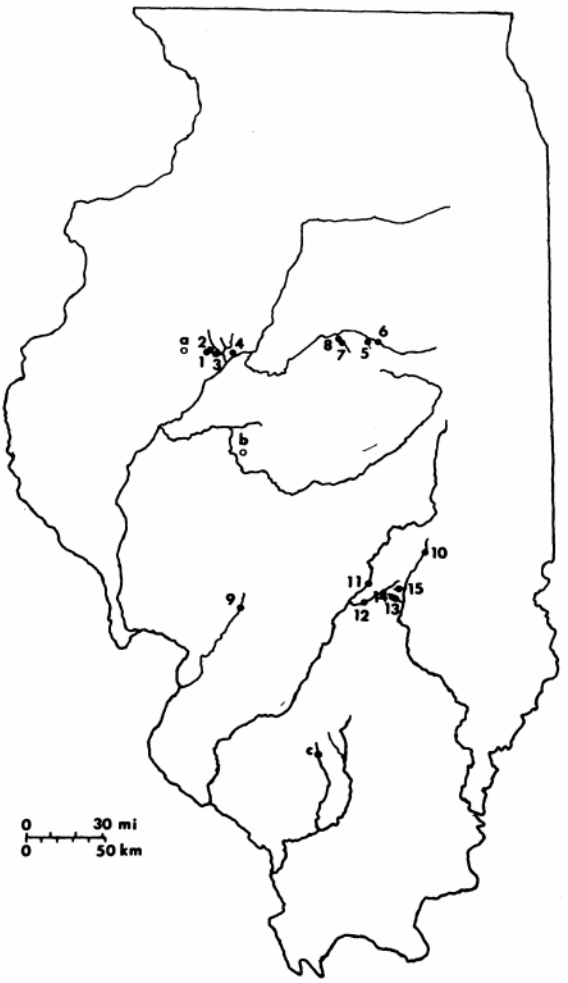

Figure 1. Distributional records of *Succinea witteri* in Illinois. *Open circles designated by lower case letters represent previously reported localities; closed circles designated by locality numbers represent records reported in the text.*

Both lentic and lotic sites are inhabited. We have never found the species in dryer upland habitats. Bare ground was always associated with populations of *S. witteri* in Illinois. No snails have been found in areas completely covered by vegetation though areas of this nature were investigated. *S. witteri* sites were all relatively sunny locations and none were completely shaded by trees or embankments throughout the day.

During the course of our field work we were able to observe reproductive behavior in this species. We find that *S. witteri* is reproductively active from May-Aug. (no observations in other months) . Egg masses were present in Effingham Co. localities in May, June, and Aug. (no observations in other months) . Egg masses were observed in McLean Co. in July and Aug. (no observations in other months) . Copulating pairs were found at Effingham Co. sites from May-Aug. and in McLean Co. during July and Aug. (no observations in other months) . Coles Co. and Wolf Creek populations were observed copulating in Aug. The above observations indicate that *S. witteri* is reproductively active throughout the summer months contrary to the situation reported for *S. ovalis* by Strandine (1941) . Strandine (1941) from an analysis of size classes suggested that *S. ovalis* were born in the spring, grew to maturity in the fall, reproduced the following spring, and died by the end of their second June. He (Strandine, 1941) noted further that there may be some reproduction in Aug. and Oct.

S. witteri has not been reported from Indiana (Goodrich and van der Schalie, 1944) and it is known from only one river system (fig. 1) that is part of the Wabash drainage basin. It may be that populations in the Little Wabash drainage basin represent relatively recent colonizations possibly from the Kaskaskia drainage basin. It is also possible that *S. witteri* is a common species in Indiana but has been overlooked by other workers as was the case in Illinois.

ACKNOWLEDGMENTS

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